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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,704	02/05/2004	George C. Tsokos	Army 178	5604

30951 7590 04/14/2008

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EXAMINER	
CHONG, KIMBERLY	
ART UNIT	PAPER NUMBER
1635	
MAIL DATE	DELIVERY MODE
04/14/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/772,704	TSOKOS ET AL.	
	Examiner	Art Unit	
	Kimberly Chong	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,10,11,15,29 and 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,10,11,15,29 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/16/2008 has been entered.

Status of Application/Amendment/Claims

Applicant's response filed 11/26/2007 has been considered. Rejections and/or objections not reiterated from the previous office action mailed 09/20/2007 are hereby withdrawn. The following rejections and/or objections are either newly applied or are reiterated and are the only rejections and/or objections presently applied to the instant application. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 10-11, 15 and 29-30 are pending and currently under examination in the current application.

Response to Declaration

The declaration filed on 10/25/2007 under 37 CFR 1.132 is sufficient to overcome the rejection of claims 29 and 30 are rejected under 35 U.S.C. 102(a) as being anticipated by Tenbrock et al. (Journal of Immunology 2002 cited in PTO form

892 filed 01/17/2006) and the rejection of claims 1, 10-11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tenbrock et al. (Journal of Immunology 2002 cited in PTO form 892 filed 01/17/2006) in view of Rosenberg, S. (US Patent No. 5,126,132)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 10-11, 15, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Solomou et al. (cited in PTO form 1449 filed 09/24/2004), Weintraub (Scientific American, 1990), Monia et al. (US Patent No. 6,159,697), Symonds et al. (US Patent No. 7,345,025) and Gruenberg et al. (US 20030134415).

The instant claims are drawn to a method of increasing IL-2 production in systemic lupus erythematosus (SLE) T cells in a patient that has SLE comprising administering gene modified T cells to said patient, said T cells having been modified with an antisense cAMP response element modulator (CREM) or a plasmid vector expressing an antisense CREM, thereby increasing the expression of IL-2 in said T cells in said patient. The instant claims are also drawn to a method of increasing IL-2 production in T cells from a SLE patient comprising removing T cells from a patient and treating said

T cells with an antisense CREM to increase IL-2 production. It must be noted that "leukophoresed lymphocytes" are not defined in the specification and because T cells belong to a group of white blood cells called lymphocytes, leukophoresed lymphocytes for purpose of prior art considered T cells.

Solomou et al teach a method of increasing IL-2 production in T cells harvested from patients with SLE (see abstract). Solomou et al. teach IL-2 is a growth factor for T lymphocytes and is exclusively provided by T cells and further teach T cells from SLE patients produced decreased amount of IL-2 (see page 4216). Solomou et al. teach the decreased production of IL-2 in SLE T cells is a result of gene transcriptional repression mediated by the binding of CREM (see page 4216). Solomou et al. teach SLE T cells have increased levels of CREM and show CREM is a strong repressor of IL-2 production. Solomou et al. teach SLE patients with decreased T cells functions are more susceptible to life-threatening infections (see page 4216). Solomou et al. does not teach modifying T cells with an antisense targeted to CREM and does not teach a method of administering the modified T cells to a SLE patient.

Weintraub teach that antisense oligonucleotides can be synthesized to hybridize to any target sequence and inhibit expression of any protein provided the target gene is known (see page 42). Monia et al. teach general antisense targeting guidelines and teach targeting any region of a desired target (see columns 3-6 generally) and teach antisense compounds can be delivered to cells in a plasmid (see column 2). Monia et al. teach antisense compounds are commonly used as research reagents and

diagnostics and teach such antisense compounds can be used in methods to inhibit the expression from a target gene and in methods of treatment of diseases.

Symonds et al. teach genetically modifying any type or progenitor cell with antisense molecules and reinfusing these cells into patients for therapeutic treatments (see columns 13-16).

Gruenberg teach a method of producing a population of immune cells for use in adoptive immunotherapy. Gruenberg teach T lymphocytes can be harvested from patients, enriched and then infused back into a patient and teach the cells have therapeutic applications in patients suffering from a variety of diseases such as SLE (see page 2, especially paragraph 0014 and 0015).

A person of ordinary skill in the art, upon reading Solomou et al., would have recognized the desirability of increasing IL-2 production by inhibition of the suppressor protein CREM in SLE patients. Both Weintraub and Monia et al. teach a known method of inhibiting expression of a target gene using antisense molecules. Furthermore, Gruenberg et al. teach method of treating patients with SLE using T cells that would reasonably been expected to be applicable to a method of increasing IL-2 in SLE patients. Further, Symonds et al. teach methods of genetically modifying progenitor cells from a patient using antisense molecules that would reasonably been expected to be applicable to genetically modifying T cells with an antisense compound, as instantly claimed. Therefore, because Weintraub teach any antisense can be synthesized to target any gene if the cDNA is known and Monia et al. is considered to comprise detailed instructions on how to make and use antisense compounds to any target, it

would have been obvious one of ordinary skill in the art to try the methods taught by Weintraub and Monia et al. to decrease the expression of CREM protein in an effort to increase the production of IL-2 in SLE patients.

Thus, because it is taught in the prior art how to inhibit expression from any target gene and it was known in the prior art that inhibition of the expression of the IL-2 suppressor increases IL-2 production in T cells of SLE patients, which have been taught to have therapeutic effects SLE patients, it would have been obvious to genetically modify T cells to inhibit CREM expression in an effort increase IL-2 production in SLE patients.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Chong whose telephone number is 571-272-3111. The examiner can normally be reached Monday thru Friday between 7-4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Schultz can be reached at 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image

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For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

KC
Examiner
Art Unit 1635

/Sean R McGarry/
Primary Examiner, Art Unit 1635